

ROLLER-COMPACTED CONCRETE PAVING AT
CONLEY TERMINAL, BOSTON

by

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ABSTRACT

During October 1986, roller-compacted concrete (RCC) was used for pavement construction at Berths 11 and 12 of the Conley Terminal in Boston. This paper describes the design and construction of the 18-in. thick pavement that used about 12,000 cubic yards of RCC.

About five weeks before actual construction, a test section was constructed. The test section consisted of 4-1/2 lanes, each full lane being 100 ft long and 15 ft wide. Three RCC mixes were used for the test section construction. The three mixes used 500, 550, and 600 lb/cu yd of cement, respectively. Each mix also used 100 lb/cu yd of fly ash. The aggregate was well graded with a maximum aggregate size of 3/4-in. Lanes were constructed in two or three lifts. Cores and beams were obtained from the test section and tested for strength. Interface shear strength was also measured for several cores to determine the bonding effectiveness between lifts.

For the actual construction, two pavers were used to place two lanes at a time. Lanes were about 450 ft long and about 15 ft wide. Lanes were placed in two or three lifts. Placement of each set of two lanes required about three hours. The pugmill plant used for production of RCC was regularly monitored and calibrated. The pugmill plant used a continuous weigh scale under the aggregate feed belt. Quality assurance procedures included in-place density measurements, check on gradation of aggregate, preparation of specimens for strength tests, and monitoring of the pugmill plant.

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The Boston project represents one of the first major RCC Paving projects to establish and undertake a comprehensive quality assurance program.

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